Satori Painting for Polymaths

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Just about everyone who has ever laid hands on a computer has sought recourse to a paint program. That everyone working with digital media should find a use for digital paint tools is not unusual, but it is peculiar that such a diverse group of artists should find themselves using the same applications no matter what their specific discipline might be.

There is, of course, convenience in the communication and exchange of data if artists use the same tools. However, if the nature of their activities differs so widely and they all experience varying problems when running up against the technical limitations of current popular software, shouldn't they all be using different or more appropriate types of paint, graphics and imaging tools?

STATE OF INDEPENDENCE

Satori is a resolution independent paint and composition tool that should appeal to anyone who can't open large image files without buying more memory; to those who thought their machine had hung itself when it was really just trying to catch up with the artists' airbrush movements; and for anyone mad enough to want painting at over 5sqm at 300dpi - all in real time.

When Spaceward Graphics set out to create Satori, it envisaged a product that would reside at the high-end of the market as the worlds most advanced object based paint, composition and graphics software. The product was to shatter all productivity standards and be priced just beyond the reach of mere mortals in the graphics industry.

Siggraph '96 in New Orleans played host to the world premier of Satori v1.0 and it was promptly adopted by a number of high profile producers of film, video and multimedia. Along with the continued onslaught of Microsoft's Windows - both NT and 95 flavours - and ever improving processor performance offering more bang for less bucks, Spaceward Graphics had a change of heart regarding the direction Satori was to take. By Digital Media World last year, Satori v1.2 was shipping for £675, a reasonable price to pay for those wishing to skip a generation of pixel poking and acquire next generation performance and object orientated tool sets. Satori's core technology has been wrung through five years of careful development with Spaceward Graphics being ever mindful of users' future requirements and expectations while being ready to serve current demands.

Such great attention has been paid to the nature and quality of the product's under lying code, that the interface is actually playing catch-up to the potential functionality deeply embedded within Satori. This is evident in the manner with which Satori seems to develop in leaps and bounds, even between relatively minor revisions.

When was the last time your favourite paint tool was revised to offer you more power and possibilities and not simply to 'bring it in line' with the rest of a corporate sized developers stable? Most of what you could dream about in such a package is achievable, it's simply a matter of determining how such functionality should be deployed under the guise of a GUI.

The first thing that is apparent on launching Satori, is the consummate ease with which the package loads colossal image files or opens ridiculously huge canvas sizes. Files ranging in size from 100, 200 and 300MB pop open with little or no complaint and canvas size options are in the realms of science fiction (in excess of 64,000 by 64,000 pixels at a colour depth of 64 bits per pixel). Satori's 64 bits per pixel provides a mind numbing 281 trillion colours with 65,500 levels of fully anti-aliased opacity for masks. If this appears to be over kill for a design going to print then relax and stick to the tools you know. But how often has less-than-perfect conditions for colour correction resulted in visible banding that is hard to ignore? Such capabilities shouldn't go unnoticed in video post houses and areas of the market where film producers are looking for tools that fit a commodity budget while satisfying quality demands in production. Also of value to the video a film markets are Satori's rotoscoping facilities which are strong for a paint package and make it an obvious solution for video houses requiring paint tools for workstations at desktop prices. Clearly there are new concepts to grasp here and a small slight of hand when dealing with existing raster based images that have been acquired through the usual I/O routes.

Satori refers to any document it generates as a canvas and these can be saved to disk as a special resolution

'independent format with the exte██h 'CVS' in the filename. CVS's are norma██ry small and suitable for transfer via networks or floppies. Artwork created with Satori can be rendered at any resolution, aspect ratio or colour depth. The term 'resolution independent' is a key concept when working with Satori. Every brush stroke, object, filter and effect applied to a canvas, can be viewed or rendered at any output resolution. No matter how far you zoom into a canvas, the software is capable of regenerating the view at any resolution leaving the image free from pixels while you work. Imported bitmaps are of course fixed in pixel resolution and as you exceed the imported artwork's resolution with the zoom view then those pixels will start popping up again.

The other down side to working with raster images is the hit in performance when working with files that exceed your screen proportions. To deal with this, Spaceward has developed a file format for resolution independent rasters (.RIR) which holds a pyramid of copies of the original raster at different scaling resolutions and combines this with a loss-less compression method which determines the most suitable compression algorithm for each tile of the pyramid.

So before we even reach the paint tools, we've learned that there are better ways of handling the data types we work with everyday, namely bitmaps, that 64 bits will make a difference when extreme image fidelity is required and that pixels aren't very cool things anyway.

INTERFACE ETIQUETTE

In use, the Satori user interface is quick and easy to learn and is well set up for handling the huge files that people will enjoy throwing at it. As is the way with everything NT and 95, it has the usual windows and dockable tool bars. Thanks to Microsoft, it seems that rather than adding a useful interface feature to any Windows application, developers have been given a means of virtually ignoring the requirements of good human/computer interaction by way of saying, 'Hey user, where do you think these buttons should go?'

Mercifully Spaceward have stopped well short of blindly following Microsoft down that dead end street and has put some time into considering the layout of critical tool sets and controls.

Along the lower portion of the screen sits a strip of fairly lean but well implemented tool sets which can be accessed by selecting work modes from the Option Bar. These include Paint, Geometry, Layer, Masking, Canvas, Colour and navigation controls. When these options are selected, a lower menu displays the functions available under the current option. Wherever an artist will spend the most time, it is critical that the interface is as flat as possible. But Satori's most useful tools always on show or close to the surface. The paint tools at first glance appear to be limited to essentials such as airbrush, solid, smudge, tint, burn, pencil, bristles and clones, but the performance of the brushes is so good that it's possible to imagine what it's like to be creative on a machine even if you are a frustrated digital master. What good are the most exotic and esoteric brush styles if they are no more responsive than Play-Doh left outside its tub too long! With Satori the performance of a 64,000 pixel width brush is very near real time on Intel machine and exceptional on Alpha based workstations. What was that? Your maximum brush size is only 999 and you have to finish the fence by lunchtime. Too bad, eh?

Satori's brush editor is deep enough to let you squeeze out extra variation in the marks you'll want to make, but this is one area where Spaceward could provide a little extra entertainment for those users who might doodle more often rather than use Satori to earn a crust. Evidently the effort required to develop brush style for a resolution independent paint system is greater than the returns. However, Spaceward has solved all of the most critical problems and removed bottle necks in much of the work flow. So perhaps we'll see it turning its attention back to the more enjoyable elements of working with paint.

Satori's ability to render out to Adobe PhotoShop v3.0 in layers is about to be augmented by the addition of a Shortcuts palette designed to ease the learning curve for existing PhotoShop users. This will be displayed as a set of familiar but generic icons for cloning, finger painting text creation, selecting and zooming etc.

At its core, Satori is object based and also allows for the creation of resolution independent vector based graphics. This includes text, open and closed splines with various coloured gradient fills, feathering, blur, tints and many other filter effects. A transparent geometric object can be made to blur any underlying data. It can then be moved, scaled rotated and have is filter parameters modified at any time through its selection in an object browser that is manifestly similar to Microsoft's Explorer environment. To Spaceward, this level of capability is a natural extension of the Satori's highly object orientated core and it would have been extremely disappointed if it couldn't provide such features. Other paint and imaging developers would describe such functionality as a big bonus.

In Satori you work with or without ●s, you manipulate stills in 1's and 2's or w● sequences. Objects remember what you did to them, and you have unlimited undo options in geometry and paint mode. Real-time can be achieved at any resolution and almost any brush size. Satori will probably be given time based creation tools and with v1.5 shipping and a further significant revision being readied as you read, Spaceward will be taking Satori where no other paint and composition tools seem fit to venture.